Kansas.—Dodge City, 23d–24th, the most severe norther that has visited this section in several years. At 8 p. m. of the 23d the temperature had fallen to —4, and by the morning of the 24th to —15.

Missouri.—St. Charles, 24–25th, the cold wave reported injurious to peaches. At Olden the temperature fell to —11. Fifty per cent of the peach buds killed.

Illinois.—Springfield, 23d–24th, snow began at 12.40 p. m., 23d, and continued until 4 a. m., 24th, during which time 5.5 inches fell. The storm was the heaviest in years, and owing to high wind drifted badly. The midnight train of the Illinois Central Railroad did not leave until 8 a. m., 24th. Delay was caused to traffic.

Indiana.—Laconia, 24–25th, the cold wave killed all peaches.

Michigan.—Grand Haven, 24th, the heaviest snowstorm of the winter prevailed all day, the snow falling at times in blinding sheets driven by a high northwest wind, which set in shortly before noon. The snow drifted in many places to a depth of nearly 2 feet. Railroad traffic interrupted.

Ohio.—Cincinnati, 24th, rain began in the early morning and changed to snow at 7.50 a. m., with rapidly falling temperature; snow ended at 12.55 p. m. The suddenness and severity caused much suffering, and business was partially paralyzed.

Tennessee.—Nashville. 24th, rain began at 3 a. m.; sleet began at 7.45 a. m., and changed to snow at 9.55 a. m., ending at 11 a. m.; beginning again at 11.40 and ending at 4.15 p. m. From 4 to 11 a. m. the temperature fell 42; considerable damage to telephone wires by sleet. Florence, 24th, the cold wave damaged wheat and winter oats. Covington, 25th, the temperature fell to zero; peach crop seriously damaged. At Nunnelly the temperature fell to —4; stock of all kinds suffered.

Texas.—State Weather Service, 23d–24th, the storm of sleet and snow was general throughout Texas, and in some places the weather was the coldest on record. Abilene, 24th, severe cold wave, with snow and high winds reaching a maximum velocity of 30 miles northwest; stock frozen. Terrell, 23d–24th, heavy rain began the afternoon of the 23d and changed to sleet at night; the wind blew a gale from the north; minor damage reported. Bonham, the blizzard struck this place at 5 p. m., 23d; rain and sleet fell, with high wind, and by the morning of the 24th the temperature fell to zero. At Whitewright a sleet and snowstorm began at 5.30 p. m. and lasted one hour; the wind continued all night from 30 to 40 miles per hour; minor damage. Luling, 24th, severe cold wave; oats and vegetables killed. San Antonio, 24th, a severe cold wave, with high north winds; temperature fell to 18; fruit trees and early vegetables badly damaged, and stock on ranges perished. Galveston, 24th, a severe norther occurred in the early morning with a maximum velocity of 50 miles per hour; a few hailstones fell at 3 a. m.; the first heavy frost of the season occurred in the morning. Corpus Christi, 24th, a severe norther struck here about midnight, followed by rain and freezing temperature; the temperature fell 46 from 8 p. m., 23d, to 8 a. m., 24th; the cold continued until the 25th, and the minimum at 8 a. m. of that date was 24, the coldest since January, 1888; all fruits, vegetables, and flowers killed; no estimate made of damage.

Louisiana.—State Weather Service, the cold wave of the 24–26th, injured garden vegetables and strawberries, and caused slight damage to cane; some fall-sown oats reported killed in northern portion. Abbeville, 24–27th, the severe cold froze garden plants and injured fruits. Roseland, 25th, a severe freeze; radishes, strawberries, and sprouts on fig trees killed. Coushatta, 25th, heavy frost killed oats.

Alabama.—State Weather Service, 25th, the cold wave caused strawberry plants and young cabbages to be destroyed.

PRECIPITATION.

[*In inches and hundredths.*]

The distribution of precipitation over the United States and Canada for January, 1894, as determined by reports from about 2,000 stations, is exhibited on Chart III. In the meteorological tables the total precipitation is given for each station; the departures from the normal are given for regular stations of the Weather Bureau in Table I of climatological data. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

NORMAL PRECIPITATION.

In January the monthly precipitation on the Pacific coast is usually greatest on the coasts of Washington and Oregon, where it exceeds 8.00. On the Atlantic coast the heaviest normal precipitation for this month is on the coast of North Carolina near Cape Hatteras. The precipitation is usually less than 2.00 over the interior region between the upper Lakes, Texas, and Idaho.

PRECIPITATION FOR JANUARY, 1894.

In January, 1894, the monthly precipitation exceeded 10.00 at a majority of the stations on the coasts of Washington, Oregon, and northern California, and exceeded 20.00 on the immediate coast of Oregon; it was between 4.00 and 6.00 in the interior of the eastern Gulf and south Atlantic States, and was less than 2.00 over the Lake region.

DEPARTURES FROM NORMAL PRECIPITATION.

The precipitation for January was in excess of the normal on the northern plateau, at Abilene, Tex., Missouri Valley, north and middle Pacific coasts, and middle plateau. It was generally deficient throughout the United States south of N. 45° and east of the Pacific slope. The principal deficits were: New Orleans, La., 3.6; Narragansett Pier, R. I., 3.3; Augusta, Me., 2.8; Savannah, Ga., 2.6; Chattanooga, Tenn., 2.5, and Montgomery, Ala., 2.4. The principal excesses were: Astoria, Oreg., 3.8; Tatoosh Island, Wash., 3.2; Walla Walla, Wash., and Eureka, Cal., 2.8.

Considered by districts the monthly precipitation for January, 1894, when compared with the normal for the month, furnished the following percentages (the precipitation is in excess when the percentage of the normal exceeds 100): Northern plateau, 189; Abilene, Tex. (southern slope), 132; Missouri Valley, 123; middle Pacific coast, 121; north Pacific coast, 120; middle plateau, 106; northern slope, 100; upper Lake region, 90; upper Mississippi, 85; North Dakota, 84; lower Lake region, 81; New England, 80; east Gulf States, 70; Ohio Valley and Tennessee, 69; south Atlantic States, 68; middle Atlantic States, 67; west Gulf States, 65; Key West, Fla., 57; south Pacific coast, 56; southern plateau, 24; middle slope, 22.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for January for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for January, 1894; (4) the departure of the current month from the average; (5) the extremes for January and the years of occurrence during the period of observation:

State and station.	(1) Average for the month of Jan.	(2) Length of record.	(3) Total for Jan., 1894.	(4) Departure from average.	(5) Extremes for January.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Fort Apache	1.21	18	1.24	+ 0.03	3.90	1886	0.18	1878
Fort Mohave	0.73	22	.....	.....	4.15	1889	0.00	*
Whipple Barracks	1.39	22	0.30	— 1.09	5.99	1886	0.00	1891
Arkansas.								
Keesees Ferry	2.81	12	1.84	— 0.97	7.37	1890	0.50	1893
California.								
Riverside	1.50	13	0.99	— 0.51	4.28	1890	0.00	1891
Colorado.								
Las Animas	0.29	12	0.00	— 0.29	0.85	1891	0.00	1893, '94
Florida.								
Merritts Island	3.28	16	1.63	— 1.65	10.45	1878	0.42	1892
Georgia.								
Forsyth	4.91	20	.16	— 0.75	10.08	1883	2.22	1880
Idaho.								
Boise Barracks	2.25	20	2.88	+ 0.63	4.60	1872	T.	1889
Fort Sherman	2.90	11	8.70	+ 5.80	8.70	1894	0.85	1893
Indiana.								
Lafayette	2.23	14	2.19	— 0.04	6.11	1880	0.40	1881
Iowa.								
Cresco	1.32	22	0.99	— 0.33	3.72	1886	0.38	1872, '84

Departures from average precipitation—Continued.

State and station.	(1) Average for the month of Jan.	(2) Length of record.	(3) Total for Jan., 1894.	(4) Departure from average.	(5) Extremes for January. Greatest. Am't.	Greatest. Year.	Least. Am't.	Least. Year.
Kansas.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Independence	1.61	22	3.38	+ 1.77	3.38	1894	0.17	1893
Louisiana.								
Grand Coteau	6.27	11	4.30	— 1.97	13.30	1883	2.52	1887
Maine.								
Orono	4.72	22	3.01	— 1.71	7.66	1891	2.00	1875
Maryland.								
Cumberland	2.14	22	1.22	— 0.92	3.90	1878	0.30	1887
Michigan.								
Kalamazoo	2.26	18	1.57	— 0.69	4.90	1876	1.10	1879
Missouri.								
Sedalia	1.97	15	2.86	+ 0.89	4.01	1885	0.19	1881
Montana.								
Fort Custer	0.83	14	0.93	+ 0.10	2.85	1884	0.08	1885
Nebraska.								
Fort Robinson	0.60	10	0.61	+ 0.01	1.56	1892	0.06	1888
Genoa (near)	0.93	18	0.59	— 0.34	2.68	1891	0.19	1893
Nevada.								
Browns	0.68	23	.....	.....	3.22	1875	0.00	1872'73
Carson City	2.37	17	2.33	— 0.04	6.78	1875	0.10	1889, '91
New Hampshire.								
Hanover	2.88	23	2.16	— 0.72	4.82	1887	0.45	1871
New Mexico.								
Deming	0.41	11	0.05	— 0.36	1.09	1889	0.00	1885, '87
Fort Wingate	1.11	22	0.55	— 0.56	3.30	1872	0.16	1881
New York.								
Cooperstown	2.59	23	2.84	+ 0.25	5.54	1891	0.52	1872
Plattsburg Barracks	1.80	23	2.04	+ 0.24	4.30	1892	0.59	1888
North Carolina.								
Lenoir	4.39	22	2.61	— 1.78	9.60	1878	1.10	1890
Oklahoma.								
Fort Reno	0.86	9	1.51	+ 0.65	2.04	1890	0.00	1887
Fort Sill	1.17	22	1.70	+ 0.53	3.80	1891	0.00	1871, '87
Fort Supply	0.61	15	0.25	— 0.36	2.67	1891	0.00	1887
Oregon.								
Bandon	10.92	16	23.07	+12.15	23.07	1894	4.60	1884
Pennsylvania.								
Dyberry	3.15	23	1.95	— 1.20	5.65	1892	0.70	1872
Grampian	3.76	23	3.15	— 0.61	5.47	1888	1.21	1872
Wellsboro	6.14	14	2.25	— 3.89	12.17	1886	1.98	1890
South Carolina.								
Statesburg	3.69	12	2.27	— 1.42	6.65	1892	0.90	1890
South Dakota.								
Fort Sully	0.46	23	0.75	+ 0.29	1.03	1887	T.	1872
Texas.								
Austin	2.35	22	1.45	— 0.90	8.03	1889	0.00	1875
Silver Falls	0.85	6	0.05	— 0.80	1.28	1891	0.05	1894
Utah.								
Terrace	0.61	22	0.85	+ 0.24	2.15	1875	0.00	*
Vermont.								
Strafford	3.58	20	3.45	— 0.13	6.10	1891	1.70	1878
Virginia.								
Dale Enterprise	2.89	14	1.16	— 1.73	5.96	1886	0.57	1890
Washington.								
Fort Townsend	2.63	19	4.53	+ 1.90	4.65	1890	1.00	1875
West Virginia.								
Parkersburg	3.54	8	1.33	— 2.21	6.75	1885	1.33	1894
Wisconsin.								
Madison	1.88	23	0.92	— 0.96	3.65	1874	0.40	1878
Wyoming.								
Fort Washakie	0.58	11	0.09	— 0.47	1.43	1891	0.04	1886

*Frequently.

ACCUMULATED PRECIPITATION.

From the beginning to the end of January, 1894, the total precipitation was in excess of the normal over the middle and northern plateau and the middle and north Pacific regions; it was especially deficient over the upper Lakes, the Dakotas, the upper Mississippi Valley, the middle slope, and southern plateau region. In detail the precipitation since the beginning of the current year, as compared with the normal for this period, furnishes the following excesses in inches: Northern plateau, 2.20; north Pacific coast, 2.00; middle Pacific coast, 1.20; Abilene, Tex., 0.30; Missouri Valley, 0.20; middle plateau, 0.10; northern slope, 0.00. It also presents the following deficits: East Gulf States, 1.60; south Atlantic States, 1.40; Ohio Valley and Tennessee, 1.40; west Gulf States, 1.30; middle Atlantic States, 1.20; south Pacific coast, 0.90; Key West, Fla., 0.90; New England, 0.80; lower Lake region, 0.50; middle slope, 0.40; southern plateau, 0.40; upper Mississippi Valley, 0.30; upper Lake region, 0.20; North Dakota, 0.10. The corresponding percentages for January are the same as above given.

YEARS OF GREATEST PRECIPITATION FOR JANUARY.

The precipitation was the greatest on record at Walla Walla, Wash., being 4.99, or 2.8 above the normal; the largest previous record was 3.45 in January, 1886.

YEARS OF LEAST PRECIPITATION FOR JANUARY.

The precipitation was the least on record at Detroit, Mich., being 0.94, or 1.1 below the normal; the lowest previous record for January was 0.97 in 1876. The rainfall at Yuma, Ariz., was 0.00, or 0.4 below the normal.

EXCESSIVE PRECIPITATION.

The following tables for January, 1894, show, by states, the number of stations reporting total precipitation to equal or exceed 10.00 inches during this month; 2.50 in 24 hours, and 1.00 in 1 hour:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
California	43	Washington	
Oregon	33		

Daily precipitation to equal or exceed 2.50 *in* 24 *hours.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
California	43	1, 13–14, 13–15, 13–16, 14, 14–15, 15, 15–16, 16, 19, 19–20, 20.	Florida	4	28–29.
			Massachusetts	4	27, 29–30.
			Indian Territory	3	19, 19–20, 20.
			Louisiana	3	13–14, 14.
Missouri	12	18–19, 19, 19–20, 20.	Oklahoma	3	19.
Mississippi	8	5, 5–6, 7, 14, 14–15, 18, 20–21.	Washington	3	9, 11–13, 12–13.
			Alabama	1	6.
Oregon	7	1, 12–13, 13–14, 14, 19, 21.			

Hourly precipitation to equal or exceed 1.00.

Florida	1	25.	Texas	1	20.
Indian Territory	1	20.			

Excessive precipitation, January, 1894.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours. Amt.	Day.	Rainfall 1 inch, or more, in one hour. Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Birmingham		2.63	6			
Arkansas.						
Fayetteville		3.06	19–20			
Rogers		2.70	19–20			
California.						
Arcata	12.35	2.70	14			
Berkeley		3.70	14–15			
Boulder Creek	14.92					
Calistoga	15.28					
Cape Mendocino Lighthouse	19.31					
Cloverdale	13.72	6.92	14–15			
Do		3.74	20			
Colfax	13.43					
Crescent City	16.40	5.78	13–14			
Crescent City Lighthouse	16.39					
Delta	14.30					
Drytown		2.58	15			
Dunsmuir	17.53					
Edmanton	17.46	7.68	14–15			
El Verano	11.86					
Emigrant Gap	10.10					
Eureka	12.38	3.72	13–14			
Felton	11.36					
Fort Ross	18.66					
French Corral		2.70	16			
Georgetown	13.89	6.90	15–16			
Glen Ellen	18.67					
Grass Valley a	11.24	5.28	15			
Gridley		3.87	14–15			
Healdsburg	11.21	5.40	15			
Humboldt Lighthouse	11.84					
Hydesville	13.57	4.42	13–14			
Do		2.58	20			
Iowa Hill	11.07	3.05	14–15			
Jackson		3.28	15			
Do		2.81	20			
Kelseyville	12.56	4.30	14			
Do		3.04	20			
Kennedy Gold Mine		3.75	14–15			
Lagrange		2.90	16			

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
California—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Laurel	10.80					
Lick Observatory		2.97	15			
Do		3.48	20			
Los Gatos *b*		3.32	15			
Mariposa		3.15	15			
Middletown	14.37	8.62	13-16			
Mills College	10.36	3.59	15			
Do		3.96	19-20			
Milton (near)		2.95	14-15			
Mokelumne Hill		3.40	14-15			
Mount Glenwood		6.04	14-15			
Nevada City	11.71	4.96	15			
Petaluma		2.98	20			
Placerville *a*	11.55					
Placerville *b*	11.05	4.24	15			
Point Arena	10.38					
Point Reyes (W. B.)	10.06	3.10	19-20			
Redding *b*		3.75	14			
San Francisco		2.61	19-20			
San Rafael	10.79	3.84	15			
Do		3.84	20			
Shasta Springs	19.39	5.19	14			
Do		3.06	19-20			
Sims	10.98					
Sisson	10.72					
Sonoma	10.39	2.98	15			
Do		4.75	20			
Susanville		3.15	14-15			
Towles	13.76					
Trinidad Lighthouse	10.48					
Ukiah	15.68	5.30	14			
Do		4.20	20			
Upper Mattole	27.56	2.90	1			
Do		12.14	13-15			
Do		5.67	19			
Vacaville *a*		4.24	14			
Vacaville *b*	10.77					
Weaverville	11.47	5.07	14			
Wheatland		2.54	15			
Wire Bridge		2.76	15			
Yreka		4.29	14			
Florida.						
Federal Point		2.75	28-29			
Jupiter				1.05	1 00	25
Saint Francis Barracks		2.60	28-29			
Tarpon Springs		2.49	28-29			
Titusville		4.14	28-29			
Indian Territory.						
Eufaula		3.00	19-20			
Lehigh		3.20	20	3.20	3 00	20
Purcell		3.14	19			
Louisiana.						
Davis		2.75	14			
Natchitoches		3.15	13-14			
Winnfield		4.00	14			
Massachusetts.						
East Templeton		3.37	29-30			
Hyannis		2.86	27			
Kendall Green		2.68	29-30			
Woods Holl		2.56	27			
Mississippi.						
Crystal Springs		2.85	5			
French Camps		3.30	20-21			
Lake		2.80	7			
Okolona		2.77	14-15			
Palo Alto		2.71	18			
Thornton		3.04	14			
Topton		3.50	5-6			
Yazoo City		2.74	14-15			
Missouri.						
Arthur		2.82	19			
East Lynne		2.94	19-20			
Eight Mile		2.95	19-20			
Emma		2.75	20			
Harrisonville		2.53	19-20			
Hastain		2.62	18-19			
Marshall		2.51	20			
Neosho		3.25	19-20			
Stellada		2.96	19-20			
Virgil City		2.50	19-20			
Warrensburg		2.72	19-20			
Wheatland		2.83	19-20			
Oklahoma Territory.						
Burnett		3.37	19			
Clifton		2.52	19			
Oklahoma		3.21	19			
Oregon.						
Albany *a*	12.15					
Albany *b*	10.79					
Astoria	15.54					
Aurora	12.42					
Bandon	23.07	2.71	1			
Do		6.88	13-14			
Brownsville	10.93					
Canyon City		2.70	21			
Comstock	11.81					
Cornelius	14.46	2.45	19			
Corvallis *a*	12.38					
Corvallis *b*	11.41					
Corvallis (near)	15.44					

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Oregon—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Gardiner	21.33					
Glenora	24.65	7.76	12-13			
Grants Pass *a*		2.51	14			
Hood River (near)	11.72					
Hubbard	10.11					
Lafayette	12.58					
Langlois	26.78	3.15	1			
Do		7.09	13-14			
McMinnville *a*	13.68					
McMinnville *b*	13.10					
Merlin	11.11					
Mount Angel	11.55					
Newport	16.15					
Oregon City	16.47					
Portland (V. O.)	12.60					
Riddles	19.34					
Salem *a*	10.41					
Salem *b*	11.09					
Sheridan	12.35					
Silverton	12.55					
Springbrook	12.82					
Toledo	21.69					
West Fork	13.91					
Williams	11.10	3.61	14			
Texas.						
Fredericksburg				1.95	1 30	20
Washington.						
Aberdeen	17.17					
East Clallam	17.95	5.68	11-13			
Elbe	13.37					
Fort Canby	11.02					
Lapush	13.22					
Neah Bay	18.50	2.80	9			
Olympia	10.14	2.50	12-13			
Pysht	13.59					
Silver Creek	10.52					
Tatoosh Island	16.39					
Union City	13.45					

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during January, 1894, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering rain gauges. This record refers strictly to rainfall; the frequent interruptions of the self-registers, due to snow, explain the numerous cases of incomplete record.

Maximum rainfall in one hour or less.

Station.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga. *	0.09	24	0.14	10	0.39	10
Boston, Mass.	0.02	24, 29	0.03	27	0.14	27
Cincinnati, Ohio	0.05	5	0.07	5	0.18	5
Cleveland, Ohio *	0.06	4	0.11	4	0.31	4
Detroit, Mich. *	0.01	5	0.02	5	0.07	5
Eastport, Me. *	0.02	25	0.04	25	0.08	25
Galveston, Tex	0.10	9, 24	0.19	24	0.43	24
Indianapolis, Ind	0.03	20	0.05	20	0.13	4
Jacksonville, Fla.	0.05	28	0.10	28	0.28	28
Jupiter, Fla. *	0.40	25	0.60	25	1.05	25
Key West, Fla	0.24	29	0.27	29	0.33	29
Memphis, Tenn	0.25	4	0.45	4	0.90	4
Nantucket, Mass. *	0.03	27	0.04	27	0.22	27
Nashville, Tenn. *	0.21	5	0.31	5	0.68	5
New Orleans, La.	0.23	20	0.35	20	0.42	15, 20
Norfolk, Va. *	0.07	26	0.10	26	0.29	26
Olympia, Wash.	0.04	13, 15	0.08	13	0.38	13
Philadelphia, Pa	0.08	24	0.15	24	0.20	29
Portland, Oreg	0.03	19	0.06	19	0.36	4
Rochester, N. Y	0.02	15	0.03	15	0.10	15
St. Louis, Mo.	0.05	20	0.07	20	0.30	20
San Diego, Cal.	0.04	3	0.05	3	0.10	2-3
San Francisco, Cal	0.15	26	0.17	20	0.36	20
Savannah, Ga	0.01	1	0.02	1	0.07	1
Vicksburg, Miss.	0.16	14	0.26	14	0.78	14
Washington, D. C.	0.06	29	0.08	29	0.22	29
Wilmington, N. C. *	0.08	11	0.16	11	0.39	11

*Record incomplete.

FREQUENCY OF HEAVY PRECIPITATION DURING 24 YEARS.

The following tables show the number of years for which monthly precipitations of 10.00 inches, daily precipitations of

2.50 inches, and hourly precipitations of 1.00 inch have been reported for January during the last 24 years:

Frequency of excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
California	17	Ohio	1
Washington	15	South Carolina	1
Oregon	14	Arizona	0
Louisiana	8	Colorado	0
Georgia	8	The Dakotas	0
North Carolina	8	Delaware	0
New York	7	District of Columbia	0
Tennessee	7	Idaho	0
Alabama	7	Indian Territory	0
Texas	5	Iowa	0
Mississippi	5	Maine	0
Arkansas	4	Maryland	0
Indiana	3	Michigan	0
Massachusetts	3	Minnesota	0
Florida	3	Montana	0
Illinois	2	Nebraska	0
New Jersey	2	New Mexico	0
Virginia	2	Pennsylvania	0
Connecticut	1	Rhode Island	0
Kansas	1	Utah	0
Kentucky	1	Vermont	0
Missouri	1	West Virginia	0
Nevada	1	Wisconsin	0
New Hampshire	1	Wyoming	0

Frequency of excessive daily precipitation.

Louisiana	16	Connecticut	3
Tennessee	14	Iowa	3
North Carolina	13	Arizona	2
Texas	12	Maine	2
Georgia	12	Maryland	2
Florida	11	Nevada	2
Oregon	10	New Hampshire	2
California	10	Utah	2
Mississippi	10	Delaware	1
Alabama	9	Idaho	1
Washington	8	Michigan	1
Virginia	7	Nebraska	1
Massachusetts	7	Vermont	1
New York	6	Colorado	0
South Carolina	6	District of Columbia	0
Arkansas	6	The Dakotas	0
Illinois	5	Kansas	0
Indiana	5	Minnesota	0
Ohio	5	Montana	0
Pennsylvania	5	New Mexico	0
Kentucky	4	Rhode Island	0
New Jersey	4	West Virginia	0
Missouri	4	Wisconsin	0
Indian Territory	4	Wyoming	0

Frequency of excessive hourly precipitation.

Texas	4	Michigan	0
Florida	2	Massachusetts	0
Illinois	2	Minnesota	0
Alabama	1	Mississippi	0
California	1	Missouri	0
Georgia	1	Montana	0
North Carolina	1	Nebraska	0
Tennessee	1	Nevada	0
Arkansas	0	New Hampshire	0
Arizona	0	New Jersey	0
Colorado	0	New Mexico	0
Connecticut	0	New York	0
The Dakotas	0	Ohio	0
Delaware	0	Oregon	0
District of Columbia	0	Pennsylvania	0
Idaho	0	Rhode Island	0
Indiana	0	South Carolina	0
Indian Territory	1	Utah	0
Iowa	0	Vermont	0
Kansas	0	Virginia	0
Kentucky	0	Washington	0
Louisiana	0	West Virginia	0
Maine	0	Wisconsin	0
Maryland	0	Wyoming	0

EXCEPTIONAL PRECIPITATION DURING 24 YEARS.

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for January during the last 24 years:

Exceptional monthly precipitation.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			*Inches.*	
Upper Mattole, Cal	41.63	1888	Emigrant Gap, Cal	25.69	1881
Do	33.40	1889	Glenora, Oreg	24.65	1894
Neah Bay, Wash	30.50	1874	Bandon, Oreg	23.07	1894
Upper Mattole, Cal	27.56	1894	Redding, Cal	22.69	1878
Langlois, Oreg	26.78	1894	Neah Bay, Wash	22.30	1887

Exceptional monthly precipitation—Continued.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			*Inches.*	
Ferndale, Cal	22.17	1889	Red Bluff, Cal	20.71	1878
Astoria, Oreg	22.16	1871	Calistoga, Cal	20.64	1878
Gardiner, Oreg	21.33	1894	Tatoosh L. H., Wash	20.50	1871
Iowa Hill, Cal	20.87	1889	Alta, Cal	20.00	1881
Cisco, Cal	20.86	1881			

Exceptional daily precipitation.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			*Inches.*	
Upper Mattole, Cal	31.68	27-31, 1888	Jackson Barracks, La	5.72	11-12, 1892
Do	12.14	13-15, 1894	Shreveport, La	5.71	13, 1885
Bay St. Louis, Miss	11.10	10-14, 1892	Fostoria, Tenn	5.70	14-15, 1885
Montgomery, Ala	9.98	12-13, 1892	East Clallam, Wash	5.68	11-13, 1894
Canton, Ga	8.95	10-13, 1892	Upper Mattole, Cal	5.67	19, 1894
Hydesville, Cal	8.86	28-31, 1888	Daphne, Ala	5.62	11-12, 1892
Middletown, Cal	8.62	13-16, 1894	Resaca, Ga	5.61	12-13, 1892
Brewton, Ala	8.55	12-13, 1892	Clintonville, Ala	5.50	23-24, 1885
Point Pleasant, La	8.40	1-2, 1886	Julian, Cal	5.50	28-29, 1892
Fort Ross, Cal	8.20	1-2, 1892	Dale Enterprise, Va	5.49	8-9, 1886
Glenora, Oreg	7.76	12-13, 1894	Duarte, Cal	5.47	30, 1893
Edmanton, Cal	7.68	14-15, 1894	Mahanoy Plane, Pa	5.45	4-5, 1886
Wiggins, Ala	7.47	11-13, 1892	Fort Barrancas, Fla	5.42	12-13, 1892
Langlois, Oreg	7.06	13-14, 1894	Healdsburg, Cal	5.40	15, 1894
Emory Grove, Md	7.00	30, 1879	Cheneyville, La	5.40	29, 1891
Cloverdale, Cal	6.92	14-15, 1894	Pasadena, Cal	5.34	30-31, 1893
Georgetown, Cal	6.90	15-16, 1894	Ukiah, Cal	5.30	14, 1894
Bandon, Oreg	6.88	13-14, 1894	Grass Valley, Cal	5.28	15, 1894
Portland, Oreg	6.86	5-6, 1883	Pana, Ill	5.25	*
Rome, Ga	6.83	11-13, 1892	Marietta, Ga	5.22	12-14, 1892
Greensboro, Ala	6.77	2-3, 1886	Fulton, Ark	5.20	1, 1890
Glendora, Cal	6.75	30, 1893	Shasta Springs, Cal	5.19	14, 1894
Clarksville, Tex	6.52	—, 1875	Cairo, Ill	5.17	17-18, 1876
Marion, Ala	6.50	2-3, 1886	Tallassee Falls, Ala	5.10	12-13, 1892
Huntsville, Tex	6.45	2, 1890	Kenton, Ohio	5.10	27-28, 1876
Jupiter, Fla	6.38	11-12, 1889	Forestville, Cal	5.08	1, 1892
Neah Bay, Wash	6.15	6-7, 1885	Weaverville, Cal	5.07	14, 1894
Diamond, Ga	6.07	12-13, 1892	Tuscaloosa, Ala	5.00	2-3, 1886
Mount Gleuwood, Cal	6.04	14-15, 1894	Delhi, La	5.00	22-23, 1887
Fayette, Miss	6.00	6, 1883	Point Pleasant, La	5.00	7-8, 1886
Fayetteville, N.C	6.00	8-9, 1879	Jeanerette, La	5.00	8, 1891
Houston, Tex	5.89	7-8, 1891	Lake Charles, La	5.00	8, 1891
Crescent City, Cal	5.78	13-14, 1894	Mount Willing, Ala	5.00	12, 1892
Oxanna, Ala	5.74	11-12, 1892			

Exceptional precipitation for one hour or less.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Jupiter, Fla	0.40	0 05	25, 1894
Memphis, Tenn	0.25	0 05	4, 1894
Galveston, Tex	0.25	0 05	15, 1890
Key West, Fla	0.25	0 05	22, 1891
Jupiter, Fla	0.60	0 10	25, 1894
Atwood, Ill	4.36	1 00	12, 1890

MONTHLY SNOWFALL.

The depth of snow that fell during the month of January, 1894, as reported by both regular and voluntary observers, is shown by the lines and figures on Chart V, which also gives, by the full line, the limit at which minimum temperatures of 32° F. were at any time reported at the regular Weather Bureau stations; by the dotted line is given a similar limit for 40°. These air temperatures within Weather Bureau shelters are, of course, higher than would be given by thermometers exposed in the open air. The line of 40° within a shelter usually marks the limit of frosts on the open surface of the ground. The date of the first snow is given in the table of dates of first frost on p. 11.

DEPTH OF SNOW ON GROUND.

The depth of unmelted snow lying on the ground at 8 p. m. Monday of each week during the winter season is shown by a series of weekly maps published by the Weather Bureau, beginning with Monday, January 1, 1894, based upon telegraphic reports received from a comparatively few selected stations. These maps may be summarized as follows:

January 1, the maximum depth was 35 inches near Marquette, Mich.; the southern limit passed from central Utah

northward to central Washington and eastward to Long Island Sound.

January 8, maximum depths, 45 inches near Marquette, Mich.; 20 near Baker City, Oreg.; southern limit from central Utah to northern Massachusetts.

January 15, maximum depth, 30 inches near Marquette and Sault Ste. Marie, Mich.; southern limit from northern Wyoming eastward to northern Massachusetts.

January 22, maximum depth, 20 inches near Marquette, Mich.; southern limit from central Colorado to Lake Superior and in southern Vermont and New Hampshire.

January 29, maximum depth, 25 inches near Marquette, Mich.; southern limit from southern Oregon east to South Dakota, southeast to southern Missouri, thence northeast to New Jersey.

The accompanying chart, No. VI, gives the depth, in inches, of snow lying on the ground on January 31 at several hundred stations, selected from among many hundred that report the presence of more or less snow. The irregularities of local distribution are so great that it seems hardly practicable to draw lines of equal snow depth, and yet an attempt has been made to indicate the zone where a trace of snow is still left on the ground. The line of 5-inch depth has also been drawn through regions where reports are sufficiently numerous to indicate that the general average depth is not less than that amount. The maximum depths on the ground at the end of the month are: California, Edmanton, 41. Colorado, Climax, 60. Idaho, Garden Valley, 34. Maine, Easton, 44. Massachusetts, Munroe, 20. Michigan, Calumet, 45; Marquette, 30. Minnesota, North Branch, 20. Nevada, Edgewood, 30. New Hampshire, West Milan, 35. New York, Leroy, 25. Oregon, Sparta, 26. Utah, Silver Lake, 74. Vermont, Strafford, 24. West Virginia, Pleasant Hill, 24. Wisconsin, Crandon, 36.

The accompanying table shows both the total snowfall and the depth of snow on the ground on the 15th and 31st of the month:

Snowfall of 10 *inches or more, January,* 1894, *with amounts on ground on the* 15*th and at the close of the month.*

State and station.	Total.	15th.	31st.
Arizona.	*Inches.*	*Ins.*	*Ins.*
Chiracahua Mountains	16.0	.....	.....
Flagstaff	20.0	.....	.....
Payson	11.5	0.0	0.0
California.			
Boca	46.0	.....	.....
Cisco	104.5	.....	.....
Cloverdale	17.0	.....	.....
Deep Creek	11.2	.....	.....
Delta	25.0	.....	.....
Dunsmuir	44.5	.....	.....
Edmanton	81.0	26.0	41.0
Emigrant Gap	101.0	.....	.....
Girard	16.0	.....	.....
Gormans Station	20.5	.....	.....
Green Valley *a*	11.2	.....	.....
Jackson	14.0	.....	.....
Keene	12.0	.....	.....
Lick Observatory	10.5	.....	.....
Little Bear Valley	15.2	.....	.....
Little Bear Val'y (near)	16.8	.....	.....
Lower Holcomb Valley	10.0	.....	.....
Morses House	19.0	.....	.....
Nevada City	16.0	.....	.....
Redding *a*	14.0	.....	.....
Redding *b*	13.0	.....	.....
Shasta Springs	61.7	.....	.....
Sims	32.0	.....	.....
Sisson	32.0	.....	.....
Squirrel Inn	15.0	.....	.....
Susanville	27.5	.....	.....
Tehachapi *a*	14.0	.....	.....
Tehachapi *b*	10.0	.....	.....
Towles	31.0	.....	.....
Truckee	77.0	.....	.....
Tunnel No. 2	10.4	.....	.....
Weaverville	42.5	.....	6.0
Colorado.			
Breckenridge	26.0	42.0	42.0
Climax	48.3	78.0	60.0
Glenwood Springs	18.0	3.5	3.0
Gold Hill	3.8	10.0	10.0
Lay	11.2	6.0	8.0
McCoy	9.5	10.0	14.0
Meeker	18.5	8.0	6.0
Colorado—Cont'd.			
Pagoda (near)	18.5	6.0	12.0
Red Cliff	37.5	.....	.....
Rico	17.3	.....	.....
Ward District	15.0	.....	.....
Connecticut.			
Bridgeport	14.8	0.0	7.4
Canton	15.5	0.0	14.0
Colchester	12.5	1.0	6.0
Falls Village	17.0	0.0	12.0
Greenfield Hill	19.0	T.	11.0
Hartford *b*	11.0	0.0	7.0
Lebanon	17.0	0.0	10.0
Middletown	14.0	T.	8.0
New Hartford *a*	17.7	1.0	12.0
New Hartford *b*	12.5	.....	.....
New Haven	16.0	0.0	6.5
New London	18.1	0.0	6.0
North Grosvenor Dale	15.0	.....	14.0
Norwalk	11.8	.....	4.2
Southington	12.0	.....	.....
South Manchester	11.0	0.0	8.0
Storrs	10.2	0.0	5.5
Wallingford	11.0	T.	9.0
Waterbury	17.0	0.0	12.0
West Simsbury	14.0	2.0	8.0
Idaho.			
American Falls	19.0	.....	.....
Atlanta Hill	.....	72.0	84.0
Chesterfield	16.0	8.0	14.0
Elgin	16.0	6.0	12.8
Garden Valley	44.0	20.0	34.0
Grangeville	43.4	2.0	10.0
Idaho Falls	17.8	T.	4.0
Kootenai	18.0	.....	.....
Lake	38.0	.....	.....
Murray	83.0	.....	.....
Paris	.....	8.0	10.0
Payette	10.2	0.0	0.0
Salubria	38.8	9.2	10.0
Illinois.			
Dixon	10.5	.....	.....
Rockford	10.5	.....	.....
Indiana.			
Hammond	10.0	0.0	.....

Snowfall of 10 *inches or more*—Continued.

State and station.	Total.	15th.	31st.
Iowa.	*Inches.*	*Ins.*	*Ins.*
Hawkeye	12.0	0.0	3.0
Iowa City	11.0	0.0	6.0
Mechanicsville	12.0	.....	5.0
Maine.			
Bar Harbor	25.5	3.0	19.0
Belfast	24.0	33.0	30.0
Calais	25.0	30.0	37.0
Cornish	13.0	.....	.....
East Machias	22.0	12.0	18.0
Easton	23.0	36.0	44.0
Eastport	13.6	5.0	5.7
Fairfield	21.0	20.0	20.0
Farmington	16.0	17.0	(?)
Gardiner	25.0	20.0	20.0
Houlton	22.0	34.0	36.0
Indian Stream	26.0	24.0	37.0
Kents Hill	8.0	20.0	20.0
Lewiston	18.2	.....	.....
Madison	28.5	26.0	38.0
Mattawamkeag	18.0	.....	.....
North Bridgeton	11.0	20.0	.....
Orono	23.5	.....	.....
Maryland.			
Oakland	21.5	.....	10.0
Sunnyside	17.5	.....	12.0
Massachusetts.			
Adams	.....	2.0	12.0
Amherst	19.5	.....	.....
Amherst Ex. Station *a*	20.2	T.	13.0
Amherst Ex. Station *b*	19.5	.....	13.0
Andover	20.0	.....	.....
Bedford	19.0	.....	15.0
Beverly Farms	19.0	4.0	14.0
Blue Hill (summit)	17.8	T.	12.0
Boston (W. B.)	13.6	5.0	5.7
Boston (V. O.)	16.5	.....	.....
Brockton *a*	12.8	6.0	6.0
Brockton *b*	12.0	0.0	6.0
Chestnut Hill	16.0	1.0	12.0
Clinton	.....	.....	14.0
Concord	19.4	1.0	14.0
Dudley	12.5	T.	9.0
East Templeton	22.2	1.0	16.5
Fall River	20.5	.....	15.0
Fiskdale	20.0	.....	10.0
Fitchburg *a*	17.5	0.0	15.5
Fitchburg *b*	18.3	(?)	15.0
Framingham	9.5	0.0	12.0
Gilbertville	30.0	3.0	16.0
Groton *a*	23.5	T.	15.0
Hingham	16.0	.....	.....
Hyannis	13.5	0.0	1.0
Kendall Green	12.0	.....	.....
Lawrence	18.2	2.5	12.0
Leeds	17.2	5.0	14.0
Leominster	18.5	0.0	13.0
Long Plain	.....	.....	15.0
Ludlow Center	17.8	0.5	3.0
Mansfield	17.5	T.	12.0
Middleboro	18.0	0.0	6.0
Milton	16.0	.....	.....
Monroe	25.5	6.0	20.0
Monson	21.5	1.0	12.0
Mount Nonotuck	22.5	2.0	15.0
New Bedford *a*	22.0	.....	6.0
New Bedford *b*	14.0	0.0	10.0
North Billerica	18.0	1.0	12.0
Plymouth	22.0	.....	.....
Provincetown	10.0	0.0	4.0
Randolph	20.0	T.	12.0
Roberts Dam	12.0	.....	.....
Roxbury	17.4	T.	9.0
Royalston	10.0	1.5	7.0
Salem	19.5	.....	.....
Salisbury	14.8	4.0	6.0
Somerset	20.0	T.	16.0
Springfield Armory	10.2	.....	.....
Taunton *b*	10.0	0.0	8.0
Taunton *d*	14.5	0.0	8.0
Wakefield	18.0	2.0	13.0
Webster	18.2	2.2?	13.0
Wellesley	11.0	.....	10.0
Westboro	21.5	0.0	12.0
Winchendon	16.5	6.0	14.0
Winthrop	19.8	1.0	10.0
Woods Holl	19.0	0.0	1.9
Worcester *a*	.....	.....	10.0
Worcester *b*	17.0	17.0	8.0
Michigan.			
Allegan	10.0	0.0	6.0
Alma	10.5	3.0	6.0
Alpena	10.4	1.0	6.3
Arbela	13.0	.....	7.0
Bear Lake	19.0	2.0	4.0
Bellaire	22.4	.....	.....
Benton Harbor	12.4	0.0	6.0
Benzonia	19.8	8.0	7.0
Boon	19.0	12.0	10.0
Brown City	11.0	0.0	4.0
Calumet	37.0	31.0	45.0
Charlevoix	17.0	.....	.....
Cheboygan	27.0	20.0	24.0
Crystal Falls	5.0	.....	26.0
Escanaba	12.0	.....	.....
Flint	10.6	0.0	5.0
Gaylord	32.5	20.0	12.0
Grand Haven	11.3	0.0	4.0
Grand Rapids	12.2	0.0	.....
Michigan—Cont'd.			
Grayling	13.5	.....	.....
Harbor Springs	34.0	20.0	16.0
Harrison	13.0	0.0	6.0
Harrisville	16.6	.....	.....
Lake City	17.0	4.0	10.0
Lathrop	8.0	20.0	22.0
Lewiston	.....	12.0	8.0
Lodi	13.4	1.5	1.0
Marquette	22.9	30.2	30.5
Mayville	14.5	0.0	7.0
Mio	.....	18.0	12.0
Paris	12.0	.....	9.0
Saint Ignace	24.5	11.0	12.0
Sault Ste. Marie	22.4	30.1	18.1
Vandalia	12.5	0.0	7.0
Williamston	13.0	0.0	4.0
Minnesota.			
Caledonia	10.7	T.	5.0
Cambridge	10.5	15.0	13.0
Dawson	12.1	8.5	12.8
Farmington	12.2	12.0	14.0
Fort Ripley	10.0	.....	.....
Hastings	12.5	9.0	13.0
Lake Winnibigoshish	13.3	.....	.....
Leech Lake	14.1	15.0	15.0
Maple Plain	15.9	16.0	18.0
Marfield	17.1	16.0	19.0
Mazeppa	12.0	6.0	8.0
Medford	10.0	2.0	8.0
Minneapolis (W. B.)	12.0	10.0	6.0
Minneapolis *a*	13.7	20.0	13.0
Minneapolis *b*	14.3	9.0	10.5
North Branch	17.7	28.0	20.0
Pokegama Falls	12.8	13.0	18.0
Rolling Green	16.5	2.0	15.0
Sandy Lake Dam	12.4	11.0	7.0
Warren	11.9	4.0	9.0
Missouri.			
New Haven	10.0	.....	3.0
Montana.			
Choteau	12.0	0.0	7.0
Cokedale	22.0	.....	.....
Fort Logan	19.0	.....	8.0
Fort Missoula	15.6	.....	.....
Great Falls	13.6	0.0	4.8
Helena	15.0	T.	4.6
Hogan	18.1	.....	.....
Martinsdale	23.5	4.0	5.0
Mingusville	11.4	.....	.....
Musselshell	17.0	.....	6.0
Nebraska.			
Bassett	17.5	6.0	10.0
Burwell	10.0	0.0	0.0
Kimball	11.0	.....	.....
Lexington	13.0	.....	.....
Mullen	13.0	.....	.....
Valentine	10.9	0.0	3.6
Nevada.			
Austin	12.1	2.0	0.0
Belmont	11.5	6.0	8.0
Carlin	19.3	.....	.....
Edgewood	58.0	28.0	30.0
Elko	11.0	.....	.....
Empire Ranch	10.8	3.0	4.0
Genoa	29.0	.....	.....
Gold Hill	19.5	12.0	0.0
Halleck	15.0	.....	.....
Lewes Ranch	20.9	3.0	3.0
Palisade	22.0	.....	.....
Palmetto	11.0	4.0	10.0
South Camp	29.2	9.0	5.5
Stofiel	30.5	4.0	14.0
Virginia City	40.5	22.0	8.0
New Hampshire.			
Alstead	14.6	6.5	9.0
Antrim	17.0	.....	14.0
Berlin Mills	25.2	15.0	21.0
Bethlehem	20.5	9.0	13.0
Brookline	24.0	5.0	18.0
Concord	10.0	12.0	12.0
Dublin	21.0	T.	12.0
East Canterbury	16.5	13.0	19.0
Grafton	15.5	10.0	14.0
Hanover *a*	13.1	6.5	8.0
Keene	14.2	4.0	10.0
Lancaster	17.5	14.0	17.0
Littleton	23.0	18.0	24.0
Nashua	15.5	.....	17.0
Newton	10.0	5.0	12.0
North Conway	12.0	15.0	15.0
Peterboro	18.0	3.0	15.0
Plymouth	12.8	16.0	20.0
Sanbornton	11.8	16.0	19.0
Stratford	23.0	12.0	14.0
West Milan	22.5	30.0	35.0
New Jersey.			
Bayonne	10.0	T.	2.0
Boonton	10.5	0.5	5.0
Chester	13.0	0.0	2.0
Dover	14.0	0.0	6.0
Franklin Furnace	16.5	0.0	7.0
Newton	16.0	.....	12.0
Paterson	12.0	.....	1.0
River Vale	11.0	.....	.....
Tenafly	13.5	2.0	5.0
New Mexico.			
Chama	16.0	12.0	12.0
Monero	11.0	8.0	4.0

Snowfall of 10 *inches or more*—Continued.

State and station.	Total.	15th.	31st.
New York.	*Inches.*	*Ins.*	*Ins.*
Albany	14.9	1.3	7.0
Alfred Center	15.0	0.0	11.0
Angelica	20.0	0.0	13.0
Arcade	16.7	0.0	13.0
Baldwinsville	19.0	0.0	6.0
Brentwood	14.1	.....	.....
Brookfield	27.0	2.0	12.0
Buffalo	11.9	0.0	7.4
Cooperstown	12.0	T.	8.0
Eden Center	21.0	0.0	10.0
Factoryville	10.5	.....	.....
Friendship	16.6	0.0	12.4
Glen Falls	15.0	.....	.....
Gloversville	17.2	5.0	9.0
Honeymead Brook	15.0	0.0	10.0
Humphrey	22.8	0.0	14.0
Ithaca	12.3	0.0	8.5
Lebanon Springs	17.1	3.0	8.0
Le Roy	34.5	0.0	25.0
Lockport	11.0	0.0	8.0
Lowville	23.0	4.0	16.0
Lyons	16.0	0.0	10.0
Madison Barracks	17.5	.....	.....
Malone	15.1	0.0	9.4
Middletown	13.7	.....	.....
New Lisbon	12.0	1.0	6.0
New York	10.2	0.0	0.7
North Hammond	18.0	0.0	14.0
Number Four	21.5	.....	.....
Ogdensburg	17.5	4.0	12.0
Oswego	18.8	1.0	9.0
Palermo	15.5	T.	4.2
Perry City	16.8	0.0	13.8
Port Jervis	12.0	0.0	4.0
Poughkeepsie	12.0	0.2	10.0
Rochester	20.0	0.0	11.7
Romulus	14.8	0.0	12.0
Rondout	13.0	.....	.....
Saranac Lake	21.5	4.0	10.0
Setauket	17.0	0.0	5.0
South Canisteo	14.1	0.0	4.0
Stillwater	25.0	2.0	10.0
Turin	30.8	6.0	14.0
Varysburg	18.1	0.0	12.0
Wappinger Falls	15.5	2.0	10.0
Watertown	20.0	0.0	18.0
Wedgwood	14.2	0.0	12.0
North Dakota.			
Williston	10.9	2.5	7.0
Ohio.			
Ellsworth	10.5	.....	1.0
Wheeler	17.0	.....	.....
Oregon.			
Baker City	27.3	T.	1.6
Bandon	12.5	.....	.....
Beulah	19.0	.....	.....
Canyon City	72.2	0.0	0.0
Crook	20.5	0.5	0.5
Glenora	21.8	0.0	.....
Heppner	14.0	.....	.....
Hood River (near)	57.5	0.0	3.0
Joseph	43.0	0.0	14.0
New Bridge	24.0	2.0	0.0
Pendleton	20.2	.....	4.0
Riddles	24.0	.....	.....
Siskiyou	86.0	.....	.....
Sparta	66.0	33.0	26.0
The Dalles	21.5	0.0	T.
West Fork	13.5	.....	.....
Weston	22.5	.....	.....
Williams	10.5	.....	.....
Pennsylvania.			
Blooming Grove	15.0	0.0	9.0
Blue Knob	16.5	0.0	13.0
Clarion	16.0	0.0	12.0
Confluence	12.0	0.0	11.0
Drifton	16.5	0.0	12.5
Dubois	13.2	.....	.....
Dyberry	11.0	T.	7.0
Edinboro	10.0	.....	12.0
Girardville	12.0	.....	10.5
Grampian	14.0	0.0	10.0
Honesdale	11.0	0.0	8.0
Kane	23.0	0.0	13.0
Le Roy	11.2	0.0	10.0
Pottstown	10.5	.....	1.0
Ridgway	12.8	.....	.....
Salem Corners	11.6	1.0	6.0
Shinglehouse	17.7	0.0	14.0
Smethport	16.0	.....	.....
Somerset	15.0	.....	6.0
Stoyestown	14.0	.....	.....
Warren	13.0	0.0	8.0
Wellsboro	10.5	0.0	10.5
Rhode Island.			
Bristol	23.0	0.0	6.0
Kingston	24.5	0.0	14.0
Lonsdale	19.8	0.0	15.0
Pawtucket	20.2	0.0	12.0
Providence[c]	18.5	0.0	9.0
South Dakota.			
Alexandria	12.0	8.0	18.0
De Smet	11.0	3.0	14.0
Oelrichs	17.0	6.0	4.0
Rosebud	15.0	2.0	6.0
Sioux Falls	10.8	10.0	13.0
Spearfish	15.0	0.0	5.0
Tyndall	11.0	.....	.....
Watertown	12.3	3.0	5.0
Webster	12.5	.....	.....
Wessington Springs	13.8	8.0	15.0
Utah.			
Castle Gate	10.2	1.5	0.0
Corinne	11.5	.....	.....
Grouse Creek	28.7	4.0	8.0
Heber	36.5	12.0	21.0
Levan	17.0	8.5	13.0
Logan	18.5	.....	.....
Manti	12.0	.....	.....
Ogden[a]	27.8	.....	.....
Ogden[b]	15.2	8.0	6.0
Parowan	17.5	.....	.....
Provo City	23.5	.....	.....
Salt Lake City	14.5	1.0	0.8
Silver Lake	66.0	60.0	74.0
Snowville	19.0	2.0	5.0
Thistle	16.0	.....	.....
Vermont.			
Brattleboro[a]	21.2	.....	.....
Burlington	14.0	2.0	5.0
Cornwall	15.0	3.0	6.0
Enosburg Falls	13.0	8.0	12.0
Hartland	16.6	11.0	13.0
Irasburg	34.0	.....	.....
Jacksonville	22.6	2.0	13.0
Northfield	24.9	9.0	22.6
Norwich	16.0	8.0	12.0
Strafford	27.0	15.0	24.0
Vernon	18.5	.....	12.0
Woodstock	22.0	7.0	12.0
Washington.			
Blaine	14.0	.....	.....
Colfax	22.6	0.0	4.0
Dayton	31.5	.....	.....
Elbe	39.6	T.	2.0
Ferry	11.0	.....	0.0
Fort Simcoe	13.0	.....	.....
Fort Spokane	17.7	2.0	12.0
Fort Townsend	11.5	0.0	0.0
Hunters	23.2	T.	17.5
Pine Hill	40.8	0.0	3.0
Pomeroy	30.5	.....	10.0
Pullman	24.8	.....	6.0
Pysht	10.0	.....	.....
Rosalia	12.8	0.0	3.0
Silver Creek	25.0	.....	.....
Spokane	15.3	0.0	4.2
Union City	10.0	.....	.....
Walla Walla	22.5	0.0	1.0
Waterville	11.2	5.5	.....
West Virginia.			
Beverly	12.5	0.0	10.5
Buchannon[a]	11.0	.....	.....
Davis	20.0	.....	.....
Grafton	11.2	0.0	1.5
Pleasant Hill	34.0	.....	24.0
Tannery	14.5	0.0	5.0
Wisconsin.			
Amherst	9.1	10.0	8.0
Baraboo	11.7	0.0	5.0
Barron	16.8	14.0	16.0
Bayfield	15.0	38.0	32.0
Butternut	8.0	26.0	32.0
Centralia	8.0	15.0	12.0
Chilton	14.4	.....	5.0
Chippewa Falls	21.5	.....	.....
City Point	11.0	12.0	5.0
Columbus	10.0	.....	.....
Crandon	19.0	30.0	36.0
Delevan	17.5	T.	2.0
Estella	15.1	16.0	14.0
Florence	17.5	15.0	20.0
Fond du Lac	12.0	0.0	5.0
Grantsburg	14.0	18.0	22.0
Green Bay	10.3	4.2	5.8
Hayward	14.5	30.0	34.0
Hillsboro	10.0	0.0	5.0
Koepenick	9.0	23.0	20.0
La Crosse	10.7	0.1	4.0
Meadow Valley	12.5	0.0	8.0
Medford	20.5	16.0	15.0
Menomonie	12.5	13.0	11.0
Neillsville	?	10.0	10.0
New Holstein	13.4	0.0	2.0
Oconto	16.1	11.0	8.0
Osceola	17.5	20.0	15.0
Pepin	11.0	4.0	9.0
Portage	11.5	.....	.....
Shawano	15.0	19.0	20.0
Stevens Point	10.5	10.0	9.0
Valley Junction	12.6	4.0	5.0
Westfield	16.0	4.0	6.0
Weston	16.2	12.0	4.0
Wyoming.			
Fort Yellowstone	16.4	.....	.....
Sundance	11.0	.....	.....

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms." Hail was reported as follows: 1st and 2d, California. 4th, California and Missouri. 11th, Arizona. 15th, Alabama and California. 16th, California and Oregon. 17th, California and Missouri. 18th, Arizona and Oregon. 19th, Texas. 20th, Mississippi and Missouri. 23d and 24th, Texas. 29th, South Carolina. 31st, California.

FOG AND DEW.

Mr. W. B. Knight, observer at Lake City, Columbia Co., Fla., reports precipitation 0.13 on the morning of the 7th and 0.09 on the morning of the 8th, and states that this was not rainfall proper, but an accumulation of dew and fog in his rain gauge; the fog was unusually heavy; the ground appeared as after a good shower, and the trees sparkled with the heaviest load of dew drops ever seen by the observer. The fog was heaviest on the 9th and 10th, but little or no dew appeared on the trees and none was caught in the gauge. The fog was also very heavy on the morning of the 17th, but only a trace was found in the gauge. This seems to illustrate the general principle that the quantity caught in the gauge must depend considerably upon the temperature of the gauge and its power of attracting and holding the foggy particles that float near it. If the ground or roof and the adjacent gauge are cooled by radiation under a clear sky, they gather dew, properly so-called, or if a flow of foggy air then comes over them they may condense its particles upon themselves. If, on the other hand, they are covered with the foggy atmosphere before they have cooled by radiation, while still retaining the warmth of the previous sunshine, then they will collect little or no dew.

On the 15th and 16th heavy fog prevailed in the lower Lake region, and the consequent leakage from telegraph wires greatly interrupted telegraphic communication.

SLEET.

Description of the more severe sleetstorms of the month is given under "Local storms." Sleet was reported as follows: 1st, Idaho and North Carolina. 2d, Idaho, Minnesota, and Nevada. 3d, Arizona, Iowa, Kansas, Massachusetts, Michigan, Nebraska, Oregon, Vermont, and Washington. 4th, Arizona, California, Illinois, Michigan, Missouri, Nevada, New York, North Dakota, and Oregon. 5th, Arizona, Maine, Missouri, Nebraska, New York, Oklahoma, Oregon, and South Carolina. 6th, Connecticut, Illinois, Indiana, Kentucky, Maine, Michigan, New York, Ohio, Oklahoma, Pennsylvania, and Washington. 7th and 8th, Oregon and Washington. 9th, North Carolina, Ohio, Oregon, and Virginia. 10th, Indian Territory, Minnesota, Pennsylvania, and Texas. 11th, Delaware, Kansas, Maine, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and West Virginia. 12th, New Jersey. 13th, Arizona and Kansas. 15th, Massachusetts, Minnesota, Montana, Nebraska, New York, North Dakota, and Washington. 16th, Colorado, Maine, Montana, New Hampshire, North Dakota, Oregon, Utah, and Washington. 17th, California, Minnesota, Nevada, New Hampshire, and Washington.

18th, California, Nevada, New Hampshire, Oregon, Vermont, and Washington. 19th, California, Colorado, Illinois, Iowa, Kansas, Massachusetts, Michigan, Missouri, Montana, Nevada, New Hampshire, Oregon, Washington, and Wisconsin. 20th, California, Michigan, Minnesota, Missouri, Nebraska, Washington, and West Virginia. 21st, Maine, New Hampshire, New York, Pennsylvania, and Virginia. 22d, Minnesota. 23d, Arkansas, Illinois, Indian Territory, Missouri, North Dakota, Oklahoma, and Texas. 24th, Alabama, Arkansas, District of Columbia, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri,

North Dakota, Ohio, Pennsylvania, Tennessee, Texas, and Vermont. 25th, Connecticut, Kentucky, Maine, Maryland, Massachusetts, New Jersey, North Carolina, and Pennsylvania. 26th, Connecticut, Maryland, Missouri, Nebraska, Nevada, New Jersey, North Carolina, Pennsylvania, South Carolina, Virginia, and West Virginia. 27th, Connecticut, Louisiana, Maryland, New Jersey, and Rhode Island. 28th, Kansas, Nebraska, North Carolina, and Ohio. 29th, Connecticut, Idaho, Kentucky, Maryland, Massachusetts, Missouri, Nevada, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia. 30th, Connecticut, Georgia, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, and Virginia. 31st, Arkansas, Illinois, Indiana, and South Carolina.

WET AND DRY PERIODS.

The Weather Crop Bulletin for the month of January shows that there was a slight excess of precipitation over the greater portion of the spring-wheat region and near Lake Superior; the month was considered dry throughout the southern and Atlantic coast States; the snow that covered the greater portion of the winter-wheat region on the 29th had by February 1 disappeared only in the southern portions of Indiana, Illinois, and Missouri, leaving the greater portion of the winter-wheat crop still covered.

The advantage of a snow covering consists in keeping the ground warm and in protecting plants, seeds, and roots from killing cold and frost; it also prevents the moisture already in the ground from evaporating, but does not add very much to it. A foot of snow is but an inch of rain and when the dry, warm winds blow, more snow evaporates into the air than melts into the ground.

The following notes have been generally extracted from the monthly reports of the State weather services, and refer principally to the relations between the precipitation and the crops:

Iowa.—College Springs, fall wheat has suffered slightly with drought. Keokuk, from January 10–20 frost was entirely out of the ground and farmers engaged in plowing.

Minnesota.—The dry spells of weather were from the 17th–19th and 21st–27th; the number of rainy days averaged only six; the amount of snow on the ground on the 15th was about normal, and on the 31st was about 10 inches, which is 4 inches less than last year, but in excess of the years 1889 and 1892.

Nevada.—Cranes Ranch, the month was good for feeding stock, horses on the range doing well. Eureka, if more snow does not fall, a scarcity of water next summer is feared by the farmers. Sunnyside, the snow has lain longer on the ground this month than was ever known before in this valley; the weather has been very cold.

New England.—The ground was mostly bare throughout the month in the south, most of the snow for the month coming on the 27th or 30th. No damage has been reported to fruit trees during the month, but the indications are that grass, roots, and fall-sown grain have suffered slightly.

New Jersey.—Cape May City, this has been a remarkably mild January; no snow has fallen; the grass is green; the early spring bulbs are 2 inches above ground; and the farmers have done much of their spring sowing.

Oklahoma.—Buffalo, Beaver Co., the finest January ever known; cattle on range doing well and keeping fat on buffalo grass, requiring no extra feed. Lehigh, Choctaw Nation, weather favorable for stock. Keokuk Falls, plenty of rainfall will bring wheat through all right.

South Carolina.—The month was favorable for all crops, and the heavy general rains from the 6–11th, which were followed by unusual warmth, developed a vigorous stand of small grains. The concensus of all the reports indicates that wheat, oats, garden truck, fruits, and all other winter crops never looked more promising in January than they do this year.

South Dakota.—Reports indicate that the snow on the ranges west of the Missouri River has not been so deep as to interfere materially with the grazing of stock. All kinds of stock have done well, and reports indicate that the loss from cold and stormy weather will be unusually light.

Tennessee.—The cold wave of the 24th and 25th proved the most severe since 1886; it was more beneficial than damaging in its effects, as it served to arrest the growth of wheat and check the rise of sap in fruit trees. The close of the month finds wheat in excellent condition.

Utah.—Unless considerably more snow falls on the southern mountains during February and March, the following season will witness a scarcity of water in the southern part of the Territory. The precipitation for the month throughout the Territory was almost entirely in the form of snow; the average amount reported for the month was 13 inches.

Ohio.—The precipitation fell mostly during the earlier and later portions of the month, the latter being mostly in the form of snow, preceding the cold wave, and affording a fair protection to the cereals in the ground. The wheat generally advanced nicely during the month under the advantage of the excess of clear and fair days and above normal temperature. The number of days with precipitation was the least noted for January since the beginning of the service.

WIND.

PREVAILING WINDS.

The prevailing winds for January, 1894, viz., those that were recorded most frequently at Weather Bureau stations, are shown in the table of climatological data, but these are not given on Chart II, as has hitherto been the custom The summary of State Weather Service reports also states the prevailing winds as recorded at voluntary stations, and according to these the most frequent winds in the respective States were as follows:

North.—Alabama.

Northeast.—Florida and South Carolina.

East.—Georgia.

Southeast.—None.

South.—Arkansas, Illinois, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, Texas, and Washington.

Southwest.—Arizona, Idaho, Indiana, Michigan, Montana, Nevada, North Carolina, Ohio, Virginia, and West Virginia.

West.—California, Colorado, New York, and Pennsylvania.

Northwest.—Indiana, Iowa, Minnesota, Nebraska, New England, North Dakota, South Dakota, Utah, Wisconsin, and Wyoming.

RESULTANT WINDS.

The resultants of all the hourly records of winds, as deduced from self-registers, are given in Table VIII in the latter part of this REVIEW, in accordance with the announcement made in the REVIEW for December, 1893. The resultants deduced from observations at 8 a. m. and 8 p. m. at all stations of the second order, which are also those observations that appear on the morning and evening maps of the Weather Bureau, are given in Table IX. These latter resultants are also shown graphically on Chart II, where a small figure attached to each arrow shows the number of hours that this resultant prevailed, assuming each of the 62 observations to represent an hour's duration of a wind of average velocity. The smallness of these figures will indicate sometimes the infrequency of a given wind, but more often it represents the balance between winds from opposite directions. The actual north, south, east, and west components, on which these resultants are based, are given in detail in Table IX. The movement from the northwest has prevailed over New England and the middle and south Atlantic States; the movements from northeast and southeast have prevailed over the Gulf States, Tennessee, and Kentucky; the movement from southwest has prevailed over Ohio, Indiana, the lower Lake region, the upper Lake region, Minnesota, Montana, Washington, and Oregon.

HIGH WINDS.

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows. Maxi-